2015

The Effects of the Energizers Program on Children's Moods

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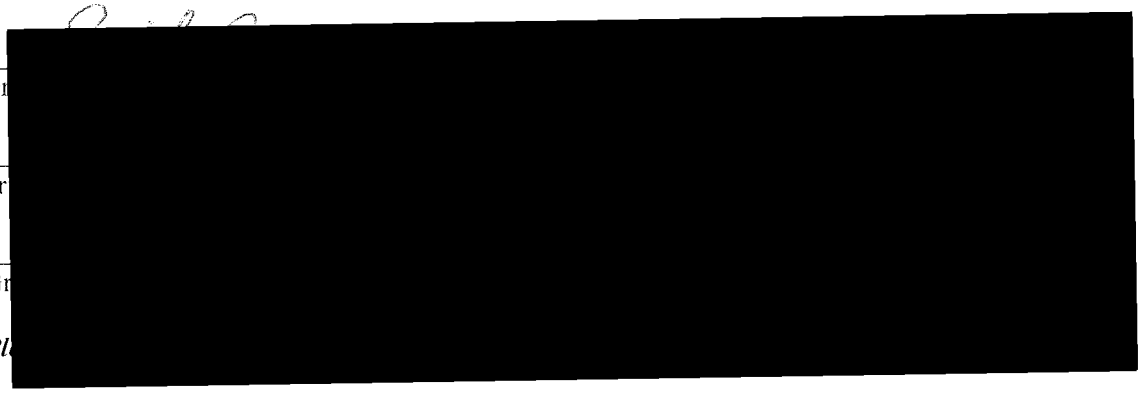

The Effects of the Energizers Program on Children's Moods

(TITLE)

BY

Emily Estes

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Specialist in School Psychology

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

2015

YEAR

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The Effects of the Energizers Program on Children's Moods

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Abstract

This study examined the effects of an eight week classroom-based physical activity program (Energizers) on the moods of third and fourth-grade students. One third and one fourth grade class participated in the teacher-led Energizers program, while the other third and fourth grade classes served as a control group. Students reported their mood at baseline, four weeks, and at eight weeks. There was no significant interaction between group membership and changes in positive or negative mood. However, girls were found to have higher long-term positive mood scores and lower long-term negative mood scores compared to boys. There was also a main effect of time on long-term positive mood for both the Energizers group and the control group. Because changes were seen in both groups, the effect of time cannot be attributed to participation in the Energizers group.

ACKNOWLEDGEMENTS

My sincerest gratitude goes first to Professor Dr. Jeffrey Stowell, who expertly guided me through my specialist thesis and my undergraduate research project. His knowledge and passion for educating students kept me engrossed in the psychology discipline.

My appreciation also extends to members on my thesis committee: Dr. Assegedetch HaileMariam and Dr. Lindsay Jenkins. Their suggestions and advice further facilitated and improved this thesis.

Furthermore, I am grateful for my parents and their willingness to fund part of my education. I must also thank them for instilling in me that quitting is not an option. Who knows where I might be had I not learned that at an early age. I also praise them for always encouraging me to do better, to be better, and to encourage the same in others. Your educational and personal influences will be seen for generations to come.

Finally, a warm thank you is extended to Swapnadip Ghosh, a dear and loyal friend, who was willing to do whatever was asked of him throughout this process.

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Introduction

Physical education is being cut from schools at an increasing rate. In 2006, only 3.8 percent of elementary schools, 7.9 percent of middle schools, and 2.1 percent of high schools offered students daily physical education or something equivalent that lasted the entire school year (Trost & van der Mars, 2010). No Child Left Behind (NCLB) is partially behind this reduction in offering physical education classes (along with music and art) because they are seen as nonessential for increasing academic performance. However, reducing offerings in physical education does not lead to increased academic performance (Coe, Pivarnik, Womack, Reeves, & Malina, 2006; Dwyer, Coonan, Leitch, Hetzel, & Baghurst, 1983). On the contrary, offering physical education courses results in improved academic performance (Shephard, 1996; Tremarche, Robinson, & Graham, 2007).

The objective of the present study was to determine whether an in-class exercise based program, Energizers, can increase the physical activity and mood of elementary school children. Energizers is a free classroom-based physical activity program that allows teachers to integrate physical activity with academic concepts (Energizers; Mahar, Kenny, Shields, Scales & Collins, 2006a). In previous studies, the Energizers program has been shown to be effective in increasing the number of students' steps taken in a day as well as improve on-task behavior, particularly for those with low on-task behavior (Goffreda, 2010, Mahar, Murphy, Rowe, Golden, Shields, & Raedeke, 2006b). However, the effects of exercise on mood is also important, as an increase in positive mood is an immediate reward and is likely to influence future exercise engagement (Hallgren, Moss, & Gastin, 2010). The current study explored the relationship between exercise and

changes in children's mood after implementing the Energizers programs into classrooms. It was hypothesized that implementing the Energizers program would increase the amount of physical activity and positive mood in children compared to a control group that did not use the Energizers program.

Literature Review

There is a substantial amount of research over the past three decades that supports the idea that exercise has a positive effect on psychological well-being, physical health, and cognition in adults (Anderson & Brice, 2011, Morgan, 1997; Steinberg, Nicholls, Sykes, LeBoutillier, Ramlakhan, Moss, & Dewey, 1998). For example, changes in positive mood (vigor and exhilaration) have been observed after low-intensity exercises in young adults (Steptoe & Cox, 1988), and a few studies suggest there is a positive relationship between exercise and positive mood in children (Annesi, 2005; Williamson, Dewey, & Steinberg, 2001).

According to Rasumussen & Laumann, (2013), the most frequently used definition of exercise comes from Caspersen, Powell and Christensen (1985, p. 128): "Exercise is a physical activity that is planned, structured, repetitive, and purposive in the sense that improvement or maintenance of one or more components of physical fitness is an objective," differentiating it from the broader term of physical activity, which is defined as "any bodily movement produced by skeletal muscles that results in energy expenditure" (p. 128).

According to Berger and Motl (2000), mood refers to "a host of transient, fluctuating affective states that reflect how an individual feels in general or globally at a particular moment in time" (p. 69). Mood is generally characterized by arousal and two orthogonal dimensions, positive and negative affect.

Positive affect represents the extent to which a person feels enthusiastic, alert, and active (Watson, Clark & Tellegen, 1988). Watson and colleagues (1988) describe high positive affect as a state of high energy, full concentration, and pleasurable engagement,

whereas low positive affect is characterized by sadness and lethargy. High negative affect is described as a dimension of subjective distress and unpleasurable engagement that contains a variety of aversive mood states such as anger, contempt, disgust, fear, and nervousness (Watson et al., 1988). Low negative affect has been described as a state of calmness and serenity (Watson et al., 1988).

Exercise's Effects on Mood in Adults

There is a strong consensus that cognitive improvement and mood enhancement are primary benefits of physical activity in adults (Berger & Motl, 2000). For instance, physical activity increased neurogenesis (birth of neurons) and cognition in transgenic mice with impaired neurogenesis. Specifically, voluntary physical activity was shown to aid neurogenesis in the hippocampus, which is the brain area crucial for learning and memory (Lafenetra, Leske, Whale, & Heumann, 2011). Steptoe and Cox (1988) examined the effects of an acute bout of exercise on mood in 32 young adult females (mean age = 20, SD = 1.06 years). Participants in the study exercised on a bicycle ergometer for two eight-minute high-intensity trials and two eight-minute low-intensity trials. During one of the high- and low- intensity trials, participants listened to a metronome, and in the other high and low trials they listened to music to reduce participant's suspicion that the dependent variable was mood. Their mood was assessed using four of the six subscales of the Profile of Mood States (POMS) (Tension/Anxiety, Fatigue, Vigor, and Confusion/Bewilderment). Three more items assessing Exhilaration were added ("Invigorated," "Refreshed," and "Uplifted"). When exercising strenuously, for a brief period, young women experienced increased tension/anxiety, whereas low-intensity exercise produced modest improvements in vigor and exhilaration.

Daley and Welch (2004) also examined the effects of an acute bout of exercise on adults' positive affect. However, this study compared the effects of the duration of 15 versus 30 minutes of exercise upon individuals' affect scores both during and after exercise. Twenty-three (mean age 22.4 years) physically active participants underwent two counterbalanced cycle ergometer exercise conditions for 15-minutes (short bout) and 30-minutes (moderate bout). The participants filled out the Subjective Exercise Experience Scale before, during, five minutes, 30 minutes, one hour and two hours following both exercise conditions. A repeated-measures analyses of variance of positive well-being, psychological distress and fatigue scores revealed significant improvement in each one. There were no significant differences between the 15-minute and 30-minute exercise conditions. The study concluded that, after relatively short bouts of acute exercise, individuals experience positive affect that persists up to several hours afterwards.

More recently, Hogan, Mata, and Carstensen (2013) examined the effects of a single bout of moderate exercise on cognitive performance and affect. The study included 144 participants aged 19 to 93. The participants were assigned to one of two conditions: exercise at moderate intensity on a bicycle for 15 minutes, or completing neutral image ratings for 15 minutes. The affect assessment examined both high- and low-arousal positive and negative affective states. The study asked participants to indicate the degree to which they were feeling angry, anxious/worried, sad, fatigued, bored, quiet, activated, enthusiastic, excited, calm, content, relaxed, and happy five minutes before completing the exercise or control condition, and immediately afterwards. Low-arousal positive affect (LAP) words included calm, content, and relaxed. High-

arousal positive affect words included activated, excited, and enthusiastic. Exercise was associated with increased levels of high-arousal positive affect (baseline: $M = 2.67$, $SD = .91$; follow up: $M = 3.19$, $SD = .85$) and decreased levels of low-arousal positive affect (baseline: $M = 3.54$, $SD = .85$; follow up: $M = 3.32$, $SD = .88$) relative to control condition.

In addition to studying the effect of an acute bout of exercise on positive mood, the weekly effects of exercise have been explored. Steinberg and colleagues (1998) conducted a study on adults ranging from 21-60 years of age on the effects of weekly exercise on mood. Adults in the study attended one of four weekly exercise classes (Beginner or Advanced Aerobics, Body Funk, or Body Shaping/Callanetics) at a fitness club for a period of 6-7 weeks. Before and after each class, subjects completed a mood test. Across all groups, there was an improvement on positive mood over time.

Increases in positive mood after exercise have also been found in those with symptoms of depression. Annessi (2005) investigated the effects of moderate cardiovascular exercise in adults on mood. Two groups of adults categorized with depressed mood (10% highest scores on the Profile of Mood States-Short Form Depression scale) were compared on changes in POMS Depression scores over 10 weeks. The exercise group (n = 26) underwent a cardiovascular exercise program three times a week, with each session lasting between 20 and 30 minutes (Annessi, 2005). The control group (n = 24) did not participate in any exercise. Significant reductions in POMS Depression scores over 10 weeks were found for the exercise group in between-group ($d = -.88$) and within-group ($d = - 1.32$) analyses. Similarly, significantly more participants in the exercise group scored in the normal range of the POMS Depression scores at Week

10 (62%) than in the control group (29%) (Annessi, 2005).

Some researchers have questioned whether acute or regular exercise produces greater positive change in mood. Hopkins, Davis, VanTieghem, Whalen, and Bucci (2012) researched this question to see if acute or regular physical exercise produced differing effects on cognition, anxiety, and mood in healthy, sedentary young adults (age 18-36 years). Participants in the study (n = 75) were assigned to one of four conditions: (a) a 4-week exercise program, with exercise on the final test day, (b) a 4-week exercise program, without exercise on the final test day, (c) a single bout of exercise on the last test day, or (d) remaining sedentary between test days. Mood and anxiety measures included State and Trait Anxiety Survey (STAI-Y1), the Beck Depression Inventory (BDI), and Positive and Negative Affect Schedule (PANAS). The exercise procedure required participants to go to the gym at least four times a week and to walk or jog continuously on a treadmill for a minimum of 30 minutes at a speed of 3.5 mph. The group that exercised for four weeks but not on the final day was the only group that experienced a positive mood change. However, both groups that exercised for four weeks experienced a decrease in state anxiety and an increase in positive mood on days of exercise compared to non-exercise days.

Yektayar, Sarshin, Saham, and Haghgo (2012) researched the effects of aerobic exercise on mood state's profile and cortisol levels in non-athlete male and female college students. The study involved evenly dividing 80 students between the ages of 19-23 into either an experimental group (20 females and 20 males) or a control group (20 females and 20 males). Those in the experimental group participated in a 10-week exercise program. Each exercise session lasted for 60 minutes and began with a 10-

minute basic aerobic exercise, followed by 40-minutes of intensive aerobics, and ended with a 10-minute nonimpact stretching exercise. Those in the control group did not participate in any exercise. The researchers used the 24-question BRUMS questionnaire to measure mood. The BRUMS questionnaire measures characteristics such as tension/anxiety, depression/embarrassment, anger/hostility, lethargy/fatigue, vigor/activity confusion/disorder. After the exercise, the mood states in men and women improved significantly. Specifically, there was a decrease in depression/embarrassment, lethargy/fatigue, decreasing tension/anxiety in females, and an increase in vigor/activity. Furthermore, there was a significant decrease in cortisol concentration of the experimental group at posttest compared with pretest.

Although the study conducted by Yektayar and colleagues (2012) resulted in positive mood changes in young adult participants after hour-long exercise sessions, exercise has also shown to increase positive affect after short durations of exercise. Anderson and Brice (2011) conducted a study using regular exercisers (at least two 30-minute sessions per week). They asked half of the participants (n = 40) to jog for 10 minutes and assessed their mood before exercise and post-exercise. A control group completed a short cognitive task for the same amount of time. Mood was assessed using the Incredibly Short Profile of Mood States, which consisted of six items representing one of the mood state subscales in the original POMS. Compared to the control group, there was a significant mood enhancement for the exercise group.

The majority of the literature supports a positive relationship between exercise and positive increases mood, but there are studies that have found contradictory results. For instance, Focht, Knapp, Gavin, Raedeke, & Hickner (2007) compared the effects of a

20-minute bout of stationary cycling on affective states and self-efficacy post-exercise between young adults (mean age of 24 years) and older adults (mean age of 64 years). To measure affective states, the authors used The Feeling Scale, the Felt-Arousal Scale, and the Exercise-Feeling Inventory (EFI). The Feeling scale measures immediate feelings of pleasure and displeasure, while the Felt-Arousal Scale measures perceived activation that ranges from low arousal to high arousal. The EFI measured the extent to which participants were experiencing revitalization, positive engagement, tranquility, and physical exhaustion. Affective assessments were measured immediately before, at the tenth minute during, and immediately following the cycling session. Both young and older adults responses on the Feeling Scale decreased significantly from baseline during exercise, but the observed reduction did not persist after exercise. Among young adults, felt arousal increased significantly from baseline both during and after exercise, while there was no difference found in older adults from baseline to during or after exercise. Analysis of revitalization revealed no significant differences in young adults, but decreased revitalization in older adults from baseline during exercise. Tranquility decreased significantly in both age groups both during and after exercise. Physical exhaustion was shown to increase significantly from baseline both during and after. No significant changes were reported for positive engagement in younger or older adults. This study's results indicate that the negative effects of exercise on mood are likely a short-lived side effect of the physical exertion.

Researchers investigating the use of the POMS suggest that the lack of change in mood due to exercise can be attributed to unpleasant environmental conditions like excessive heat and high-intensity exercise (Berger & Motl, 2000). The results of a study

conducted by Hallgren, Moss, and Gastin (2010) explored this idea. Their study examined the effects of an acute bout of vigorous exercise on mood and anxiety in regular exercisers (n = 16) compared to non-regular exercisers (n = 15). The study employed the help of college students by assessing their mood with the POMS scale and the EFI 24 hours prior to the exercise session, immediately before the exercise test, and again 10 and 25 minutes post-exercise. Participants completed an exercise test on a cycle ergometer to the point of volitional exhaustion. Regular exercisers reported mood improvements on both measures from baseline to 25-minutes post-exercise, while non-exercisers reported more negative mood states. Specifically, non-exercisers reported greater Fatigue, less Vigor and more Physical exhaustion 10 minutes after exercise, but then showed a return to baseline mood levels after 25 minutes. Therefore, it was concluded that the positive mood due to exercise was moderated based on whether participants had a history of regular exercise.

Exercise's Effects on Mood in Adolescents and Children

Studies of exercise and mood in adolescents and children are scarce. Rasmussen and Laumann (2013) conducted a review on the psychological benefits (namely cognition, self-esteem, emotions, and mood) related to exercise in this population. They reported that there appears to be a near complete lack of studies on the relationship between exercise and positive emotions or positive moods in children and adolescents, although there were studies on exercise and self-esteem.

An independent search for studies examining the relationship between exercise and mood in children discovered some support for the relationship. For instance, Annesi (2005) implemented an after-school physical activity program for preadolescents. Those

in the treatment group participated in a 12 week exercise program consisting of three days/week of cardiovascular activities in the form of noncompetitive tasks and games alternating between low, medium, and high intensity (55%, 65%, and 80% age predicted maximum heart rate, respectively). Participants in the control condition worked on homework, reading, and tutoring during these sessions. Preadolescents (9-12 years of age) completed the Self-Description Questionnaire, the Tennessee Self-Concept scale 2: Child Form subscale of Physical Self-Concept, and the Profile of Mood States Short Form scale of Total Mood Disturbance consisting of 30 items. Changes in Total Mood were derived by subtracting scores at Week 1 from scores at Week 12. Improvements for the treatment-group were significantly greater than the control group on Physical self-concept (d = .71), General Self (d = .87), and Total Mood Disturbance (d = .71).

Alpert, Field, Goldstein, and Perry (1990) investigated the effects of aerobic exercise on agility, health-habits, and self-esteem in a sample of 24 preschool children. In relation to the current study, the focus is on the results related to self-esteem, as self-esteem relates to positive mood. For a period of 8 weeks, a group of 12 children underwent a 30-minute aerobic exercise condition, while the control condition consisted of 12 children allowed to engage in free play on the school playground as part of their regular routine. The children in the exercise condition had to raise their average heart rate to 60-80% of its predicted maximum. The sessions began with a warm-up of a five-minute stretch, and then they engaged in exercise that included imagery to maintain the children's interest. For instance, the children pretended to smash bugs while doing jumping jacks or shouted different animal noises while running. The researchers measured the children's self-esteem at baseline and after the exercise program with the

Thomas Self-Concept Values Test, which was reported to have acceptable psychometric properties for preschoolers (test-retest reliability of .84). The experimental group significantly increased their self-esteem scores from pretest to posttest, while the control group's scores remained constant from pretest to posttest.

Williamson, Dewey, and Steinberg (2001) conducted a study to explore an acute bout of exercise's effects on children's moods. They had 64 children between the ages of nine and ten years old participate in their study. Each of the participants rotated through three different conditions on the same afternoon: a 15-minute "fun run" exercise session which consisted of running around the school gymnasium, a "fit kid" session which consisted of 15-minute exercise condition playing with volleyballs or space hoppers (large rubber balls with handles on which children can hop up and down), and viewing a 15-min video on antismoking which was perceived as enjoyable by the researchers. Mood was assessed at baseline and after each treatment condition using a modified version of the POMS. Compared to baseline, positive mood significantly increased following both the "fun run" and "fit kid," and decreased after watching the video. Negative mood at baseline decreased following the "fun run" and "fit kid" and increased after watching the video.

The benefits of exercise on mood are unclear in populations other than healthy children. Lofrano-Prado, Hill, Silva, Freitas, Lopes-de-Souza, Lins, and do Prado (2012) conducted a study on the acute affects of aerobic exercise on mood and hunger feelings in male obese adolescents. Each of the eight male obese adolescents underwent three conditions: a control condition in which they were seated for 30 minutes, a low intensity exercise condition, and a high intensity exercise condition. Lofrano and colleagues

(2012) measured the participants' anxiety with the State-Trait Anxiety Inventory (STAI), their mood by Profile of Mood States (POMS), and hunger through Visual Analogue (VAS) scales. The control session reduced trait and state anxiety and improved vigor, while the high and low exercise conditions increased trait and state anxiety and fatigue, and decreased vigor.

As the literature has shown, a substantial amount of evidence supports exercise's role in increasing positive mood in adults, while there is a limited amount of research on its effects in adolescents and children. In general, studies that used extended exercise programs (Alpert, Field, Goldstein, and Perry, 1990; Annessi, 2005; Annessi, 2005; Hopkins, Davis, VanTieghem, Whalen, and Bucci 2012; Steinberg, Nicholls, Sykes, LeBoutillier, Ramlakhan, Moss & Dewey, 1998; Yektayar, Sarshin, Saham, and Haghgo, 2012) found increases in positive mood in contrast to single bouts of exercise (Focht, Knapp, Gavin, Raedeke, & Hickner, 2007; Lofrano-Prado, Hill, Silva, Freitas, Lopes-de-Souza, Lins, & do Prado, 2012) that found a decrease in mood, although there were some studies using acute bouts of exercise that demonstrated positive results as well (Daley and Welch, 2003; Hogan, Mata, and Carstensen, 2013; Steptoe & Cox, 1988; Williamson, Dewey, and Steinberg (2001).

School-Based Interventions

Physical education in schools provides an opportunity to measure students' levels of fitness. Barr-Anderson, AuYoung, Whitt-Glover, Glenn, Yancey (2011) conducted a systematic review of the effectiveness of short activity bouts incorporated into an organizational setting. The articles reviewed included 15 school-based intervention studies, with the majority taking place in elementary/primary schools, one in junior high,

and one in preschool. The interventions spanned from two weeks to 6 years, averaging around thirteen months. Most school-based interventions implemented 10-15 minutes of physical activity bouts into their regular routine. Twelve of the 15 school-based publications reported increases in physical activity following the interventions with moderate to large effect sizes based on self-reported physical activity, direct observation, pedometer or accelerometer data, and teacher report.

The Happy 10! is a classroom-based physical activity intervention that incorporates 10 minutes of physical activity into third- and fourth-grade classrooms once a day for two semesters (Liu, Hu, & Ma, 2008). It was designed like a card game with bright colors and cartoon characters. Each Happy 10! period of activity can be led either by a teacher or child who draws a card from a deck and then leads the class through 10 minutes of activities that are described on the card. The ten-minute period is divided into one- or two-minute increments during which students pick up a card that determines what the class will do. The activities vary in level of physical exercise and are followed by a cool down period in which students learns a health message and reward themselves with stickers placed on the classroom's wall. BMI decreased in girls who participated in the Happy 10! intervention (Liu, Hu, & Ma, 2008).

Effects of Exercise on Classroom Behavior and Cognition

Cognitive benefits such as improved math and reading skills may result from physical activity. For instance, half of the 35 children identified as potentially at risk for dyslexia (through the dyslexia screening test and school-administered tests) participated in a home-based exercise therapy program twice daily every day for six months (Reynolds, Nicolson, & Hambly, 2003). Examples of exercises involved in the therapy

included throwing and catching beanbags and spinning exercises. After six months, the exercise group improved significantly more than the control group on a range of cognitive skills such as speech/language fluency, phonology, and working memory, while also improving motor skills. The follow-up study (Reynolds & Nicholson, 2006) concluded that the effects from the exercise program were maintained at 18-months.

Furthermore, a longitudinal study by the Centers for Disease Control and Prevention followed a sample of 5,316 students from kindergarten to 5th grade. Girls that participated in physical education for 70 or more minutes per week achieved significantly higher mathematics and reading scores than girls who were enrolled in physical education for 35 or fewer minutes per week (Carlson, Fulton, Lee, Maynard, Brown, Kohl, & Dietz, 2008).

The Energizers Program

Mahar, Murphy, Rowe, Golden, Shields, and Raedeke (2006) implemented the Energizers intervention program, which included teachers incorporating 10 minutes of classroom-based exercise every day for 12 weeks in Grade K-4 classrooms (three classes per grade level). They assessed classroom on-task behavior in two Grade 3 and Grade 4 classrooms. Students in the experimental group took more daily pedometer steps than those in the control group following implementation of the Energizers program (Cohen's $d = .49$). Additionally, on-task behavior improved in the experimental group compared to the control groups ($d = 0.60$). Students that reportedly had the most difficulty with on-task behavior showed the greatest improvement from baseline to post-intervention ($d = 2.20$).

According to Motl & Berger (2000), enjoyment of the exercise itself greatly influences the mood benefits. Teachers using the Energizers program in the past reported that the children liked the program. One teacher stated "The students enjoyed the Energizers because they got a chance to have fun while learning different academic concepts (health, spelling, geography). They did admit that all the movement tired them out" (p. 4). The team members of Energizers (Mahar, Kenny, Shields, Scales, & Collins, 2006a) suggest using Energizers 10-minute activities two to three times per day, when possible. However, the study conducted by Mahar and colleagues (2006b) only used one Energizers activity each day. They go on to state that the majority of the activities can be adapted for special needs students, and can be easily modified for different areas of study (Energizers; Mahar et al., 2006a).

Summary

A large body of literature exists supporting exercise's positive effect on mood in the adult population. Effects on positive mood after exercise have been found in various healthy populations including younger adult populations, in both non-athletes and regular exercisers. Not only have positive effects on mood appeared in healthy adults, but also in those with depression. The type of exercise producing positive effects has also varied from riding bicycle ergometers to shaping/Callanetics classes.

While some positive encouraging effects of exercise on mood have been found with older adult populations (Hogan, Mata, & Carstensen, 2013), the results are mixed. For example in one study, sedentary older adults' moods actually decreased after exercise. Berger and Motl (2000) offered an explanation that the negative effects on mood after exercise are the result of unpleasant environmental conditions such as

excessive heat and high-intensity exercise. The positive effects of exercise may have long reaching effects on positive mood, whereas increases in negative mood after exercising in sedentary populations appear to be transient. For example, those experiencing negative mood changes immediately after exercise generally returned to their baseline mood levels after a short period of time (Hallgren, Moss, & Gastin, 2010).

There is support for the positive effects of exercise on children's mood, but more research is needed. The current study aims to extend the existing literature through use of the Energizers program. Previous school-based exercise programs such as the Happy 10! have been shown to improve physical activity, while the Energizers program has shown to increase on-task behavior, and improve students' physical health. Other school-based interventions have had promising results for improving other cognitive skills in children. Less is known regarding the effects of school-based exercise programs, particularly the Energizers program, on mood. The goal of the current study was to examine the effects of the Energizers program on children's activity levels and mood. In order to do this, three research questions and hypotheses were tested.

Research Question 1. Would the Energizers program significantly increase student's school-based activity levels compared to those in the control group?

Hypothesis 1. The Energizers program would increase students' school-based activity levels. Prior studies have shown that the classroom-based Energizers program promote increased levels of physical activity throughout the school day (Goffreda, 2010; Mahar et al., 2006b).

Research Question 2. Would the Energizers program significantly increase students' positive mood scores compared to those in the control group?

Hypothesis 2. Increased physical activity in the Energizers group would significantly increase the level of positive mood scores, while the control group's positive mood scores would not change significantly. This prediction is based on previous studies supporting the positive relationship between school-based exercise programs and positive mood (Alpert, Field, Goldstein, & Perry 1990; Annessi, 2005; Williamson, Dewey, & Steinberg, 2001).

Research Question 3. Would the Energizers program significantly decrease students' negative mood scores compared to those in the control group?

Hypothesis 3. Increased physical activity in the Energizers condition would significantly decrease the level of negative mood scores, while students' negative mood scores in the control condition will remain constant. This prediction is based on previous studies supporting the relationship between school-based exercise programs and decreased negative mood (Annessi, 2004; Williamson, Dewey, & Steinberg, 2001).

Method

Participants

Participants in the current study included a total of 65 students from two third and two fourth grade classrooms at a public school in southern Illinois. One third grade classroom and one fourth grade classroom participated in the Energizers program (n = 31), while the other third and fourth grade classrooms served as control groups (n = 34). The participants included 33 boys and 32 girls, with mean age of 8.75 (SD = .64) years. Out of the 65 students, there were five children that identified as African American, two as Asian, one as Hispanic/Latino, and 47 as Caucasian. Participating teachers were recruited in the Mt. Vernon, IL area first by asking permission from their building administrators through e-mail. Upon approval by administrators, teachers were asked to participate in the program. Upon completion of the program, teachers implementing the Energizers were given $100 Visa gift cards, while teachers in the control group received $50 Visa gift cards.

Materials

Energizers

The Michigan State Department of Education founded a program called, "Brain Breaks" which provided teachers with physical activities that are based on core academic concepts. In partnership with the Michigan Department of Education, the state of North Carolina created their own version of Brain Breaks with more emphasis on "physical exertion" to create the "Energizers" (Mahar et al., 2006a). Through the support of NC Healthy Schools and Be Active North Carolina, Inc., East Carolina University was able to

write, pilot, and develop the "Energizers" for classroom teachers everywhere, in order to incorporate them into their daily classes (Mahar et al., 2006a).

One such Energizers activity is called "Heart Smart," which involves the teacher describing the heart: its location, size, function, and how to strengthen it. The teacher then calls out a list of habits that either strengthen the heart or weaken it. If the activity strengthens the heart (e.g. riding a bike, walking one's dog, or swimming), the students are to jump. If an activity weakens the heart (e.g. smoking cigarettes, playing video games, or taking the elevator), students are to squat or fall down.

Another examples of an Energizers activity is "Frozen Vocabulary," which begins by having students stand near their desk and do an activity such as jumping, twisting, jogging, hopping, knee lifts, or jumping jacks. The students continued this activity until the teacher called out a vocabulary word at which point students froze. The teacher called on a volunteer to use the vocabulary word properly in a sentence. Students resumed the physical activity or began a new activity after the volunteer student completed the task of using the word in a sentence.

Physical activity assessment.

Physical activity was assessed by children wearing pedometers, purchased through AnyPromo.com, to determine whether the daily in-school activity levels of students who participated in the Energizers program differed from the activity levels of students who did not participate in the program (Mahar et al., 2006b). Each morning, students placed pedometers on their belt or pants at the midline of their thigh and reset the pedometer. Students in the intervention classes recorded the number of steps they took prior to the Energizers activity, the number of steps after completion of the

Energizers activity, and the number of steps accumulated at the end of each day. Those students in the control group only recorded the number of steps taken at the end of each school day (Mahar et al., 2006b). Daily in-school physical activity levels were quantified as the average number of steps logged (Mahar et al., 2006b).

Mood assessment.

The Profile of Mood States (POMS) was chosen due to the fact that the original, and various shortened versions, of the POMS has been a reliable and valid measure of mood in physical activity settings in children (Berger & Motl, 2000), and the original POMS has substantial psychometric power (Anderson & Brice, 2011). Internal consistency for the original Profile of Mood States was reported at 0.63 to 0.96 (Cronbach alpha). For the short form, POMS-SF, the internal consistency rating was 0.76 to 0.95. The correlation between the sub-scales and the total score in POMS and POMS-SF was calculated as 0.84. Overall positive mood and negative mood scores were measured independently. Positive mood scores and negative mood scores were measured on a Likert scale, from 1 to 5 (1 = Not at all, 2 = A little, 3 = A fair amount, 4 = Very, 5 = Extremely), and calculated by the sum ratings of each participant's positive mood words (Minimum = 12, Maximum = 60) and negative mood words (Minimum = 11, Maximum = 55). The words chosen for the POMS were the same words used in the study by Williamson and colleagues (2001). Each time the students took the POMS adapted version, there was a glossary with the words and definitions included in case students were unfamiliar with the words or their meanings.

Procedure

All students with returned signed consent forms (only one student's guardian denied consent) were assessed at baseline for physical activity and mood. Students in the intervention classrooms participated in the Energizers activity program to increase their daily activity levels at school. The activities were about 10 minutes long, and the third and fourth grade teachers were required to implement one Energizers per day for 8 weeks. Teachers were allowed to choose which activity they wanted to incorporate into their lessons by selecting from the full Energizers activity book they were given, and were asked to write down which activities they used each day. The two teachers attended a training session by the researcher where they learned how to lead students through the exercise activities (Mahar et al., 2006b). The researcher then observed the teachers leading the first Energizers program with their students.

In both groups, students' moods were assessed using the adapted form of the POMS to establish baseline mood levels. Additionally, during the first day of the Energizers session, students completed a version of the POMS prior to exercising, and immediately after exercise to evaluate baseline short-term mood level changes. The control group also completed the POMS 10-minutes after baseline. To assess long-term effects on mood, participants in both groups completed the POMS four and eight weeks after the start of the experiment.

Statistical Design

The dependent measures were physical activity (number of steps taken) and mood levels calculated from the POMS. For each dependent measure, a 2 x 3 mixed-factor ANOVA was used with the treatment conditions (Energizers, control) as a between

subjects factor and time (baseline, 4-weeks, 8-weeks) as a within subjects factor. An alpha level of .05 was used. Effect size of the mean difference was calculated using partial eta squared (Mahar et al., 2006).

Results

Unfortunately, twenty-five students' pedometer data were missing from participants in the Energizers group, preventing further data analysis of physical activity. For example, a majority of students either did not record their steps each day or recorded them incorrectly. This was primarily due to misplaced pedometers, broken pedometers, or confusion about how to record the data.

Short-term Mood

Only two students had missing mood survey data, resulting in data analysis of mood scores for 65 participants. A two-way analysis of variance was conducted on short-term positive mood changes (baseline vs. 10 minutes later) to test the interaction between group membership and time, which was not significant for positive mood scores (Appendix A, Table 1). However, there was a main effect for time, $F(1, 63) = 19.20$, $p < .001$, such that positive mood, overall, increased. There was also no significant two-way interaction between group membership and time for short-term negative mood, and no main effect of time (Appendix A, Table 2).

Long-term Positive Mood

In addition to examining short-term mood changes, it hypothesized that positive mood scores would significantly increase for those in the Energizers group, while remaining the same for those in the control group. Gender was included as another post-hoc analysis factor because of the commonly reported gender differences in mood-related pathology (Do Boo & Spiering, 2009). A three-way analysis of variance for mixed factorial designs was conducted on overall positive mood scores. Results show that there was no significant three-way interaction between group, time, and gender. There was

also no significant main effect of group, however, there was a significant main effect of gender and time (Appendix A, Table 2). Across time, positive mood increased from baseline to week four for both girls and boys, but scores fell near baseline when measured again at eight weeks.

Overall, girls reported higher mood scores than boys at each point in time (Appendix B, Figure 1). For boys in the Energizers group, there was in increase, though not significant, in positive mood from baseline to four weeks, but then positive mood decreased from four weeks to eight weeks (Appendix B, Figure 2). Similarly, for boys in the control group, there was an increase in positive mood from baseline to four weeks, and then a decrease in positive mood scores by week eight (Appendix B, Figure 2).

For girls, there was an increase in positive mood in the Energizers group from baseline to week four, followed by a slight decrease in positive mood scores at week eight (Appendix B, Figure 3). Girls in the control group showed a marginal increase in positive mood from baseline to week four, but then decreased in positive mood from week four to week eight (Appendix B, Figure 3). After using a Bonferroni correction, none of the pairwise comparisons between groups for positive mood proved to be significant.

Long-term Negative Mood

It was also hypothesized that negative mood scores would significantly decrease for those in the Energizers group, while remaining the same for those in the control group. A three-way analysis of variance for mixed factorial designs was conducted on overall negative mood score (Appendix A, Table 4).

There was a slight decrease in boys' negative mood scores in the Energizers group from baseline to four weeks, but a return to baseline in negative mood from four weeks to eight weeks. For boys in the control group, there was a marginal increase in negative mood from baseline four weeks, but a decrease in negative mood scores by week eight (Appendix B, Figure 5).

For girls, there was a decrease in negative mood scores in the Energizers group, from baseline to week four, where it remained at week eight. Girls in the control group had a marginal increase in negative mood from baseline to week four, and an increase in negative mood from week four to week eight (Appendix B, Figure 6). Similar to positive mood scores, using a Bonferrori correction, none of the pairwise comparisons for negative mood proved to be significant.

Overall, the results revealed that membership in the Energizers group did not increase the positive mood scores, nor decrease negative mood scores. However, there were main effects for gender for both positive and negative mood scores. There were also main effects for time for positive mood scores.

Discussion

The purpose of the current study was to determine if the Energizers program increased physical activity, increased positive mood, and decreased negative mood. Evaluation of the Energizers program's effects on physical activity proved to be inconclusive due to recording errors and faulty pedometers. Prior evidence presented by Mahar and colleagues' (2006b) showed that physical activity increased for children participating in the Energizers program. Although a similar result was expected with this study, there were not adequate data to evaluate this hypothesis.

The prediction that members of the Energizers group would display an increase in positive mood along with a decrease in negative mood compared to the control group was tested. The data did not indicate a significant increase in positive mood or decrease in negative mood and thus did not support our hypothesis that Energizers group membership would result in those particular mood changes. It should be noted that although there are limited studies on the effects of exercise on children's moods, our results do not match that of Alpert, Field, Goldstein, and Perry (1990), Annesi's (2005), or Williamson, Dewey, and Steinberg (2001), who found significant beneficial effects of exercise on children's mood. However, it should be noted that none of these other studies used the Energizers program. For instance, Alpert and colleagues (1990) found that 30-minute aerobic exercise sessions over eight-weeks increased students' self-esteem, which is associated with positive mood. Perhaps the length of the exercise sessions (30-minutes) played a significant role in that study. Comparatively, the Energizers activities only took approximately 10 minutes. Likewise, Annesi (2005) conducted a study involving a 12-week after school program with students that were slightly older (ages 9-12), and found a

decrease on Total Mood Disturbance on a short form of the Profile of Mood States. The increased age and length of that study might explain some of the differences between it and the current study. For instance, students younger than nine have some difficulty with introspective thinking due to their developmental levels (Grave & Blisset, 2004). Implementing the program for a longer period of time might have also increased the impact in Annesi's study. Similarly, just as children were slightly older in Annesi's (2005) study, Williamson and colleagues (2001) also used nine and 10 year old students which may have influenced the results. Furthermore, they used a different exercise program and had the children exercise for 15-minutes, which is also longer than the average Energizers activity.

Although the results from the current study showed that there was no definitive relationship between mood and participation in the Energizers program, the results did indicate a main effect for time and gender. There were differences in mood over time in both control and Energizers groups but it cannot conclude that these differences were caused by participation in the Energizers program. Furthermore, data indicated fluctuation in the mood scores over time with no overall trend in either positive or negative directions. This could have been caused by a novel effect that wore off over time, or it could have been a result of the instability of the Energizers implementation. Namely, one of the classrooms only implemented the Energizers 23 out of approximately 38 possible days. If it had been implemented consistently and more data were collected, then perhaps it is possible significant effects would have been found.

Although gender differences were not initially proposed in our hypothesis, the data presented us with an interesting exploration of the study. The results showed higher

positive mood scores and lower negative mood scores for girls in comparison to boys. This outcome is different than previous studies that either found girls are more vulnerable to depression (an association with lower positive mood scores and higher negative mood scores, see Do Boo and Spiering, 2010) or there are no gender differences in children 12 or younger in respect to depression (Wichstrom, 1999). However, Wichstrom (1999) noted that from the age of 14, girls scored 0.5 standard deviations above boys in depressed mood, and this difference was stable throughout the adolescent period. Wichstrom (1999) went on to say that gender differences could be explained in part by increased developmental challenges for girls—pubertal growth, dissatisfaction with weight and attainment of a mature female body, and increased importance of feminine sex role identification. Such findings could imply that younger girls do not face the same challenges, and are therefore less susceptible to lower positive and higher negative moods incurred by adolescent girls. Conversely, our findings may also indicate that boys are more susceptible to lower positive and higher negative moods than originally thought. Boys' psychopathology symptoms are more often presented as externalizing (De Boo & Spiering, 2009), and those with internalizing symptoms may be overlooked, especially if the child is not causing a disruption in the classroom (compared to aggressive or defiant behaviors). Perhaps early screening could identify or prevent mood disturbances in preadolescents.

Limitations

Although valuable information was obtained, there are many notable limitations to this particular study. Foremost, the inability to collect physical activity data made it substantially difficult to determine if children in the Energizers group were more active

than those in the control group. If their activity level had decreased, a potential confounding factor could be in the changes in activity level due to seasonal changes. Seasonality and extreme weather conditions have shown to be obstacles for physical activity participation (Tucker & Gilliland, 2007). Since this study was conducted in the fall semester, children in this particular study may have been limited to indoor gym activities as opposed to a combination of indoor gym and outdoor playground activities as winter approached.

As mentioned previously, despite frequent fidelity checks, the implementation of the Energizers program was lower than what was initially proposed. For example, one of the classrooms only implemented the Energizers 23 out of approximately 38 possible days. If it had been implemented consistently and more data were collected, then perhaps it is possible there may have been an interaction between group membership and time on mood.

Another limitation concerns the mood surveys completed by the children. In nearly every instance the mood survey was administered, there were a few children who did not understand the task and circled multiple ratings for words. An adult was assigned to aid the child, but requiring assistance may have played a role in the child's responses. Furthermore, when self-reporting, individuals may modify their true response to a seemingly more acceptable answer. In this particular study, the responses patterns suggested that this might have occurred. A number of individuals indicated the maximum positive mood scores and the lowest negative mood scores (rating all positive words a '5' and all negative mood words a '1').

Individuals may also interpret and use scales differently - what some might rate as '4' on a 5 point scale, others with the same opinion might only rate as a '2' as they interpret the meanings of the scale points differently. Likewise, research suggests that people have different ways of completing rating scales. Some people are 'extreme responders' who like to use the extremes of the scales, whereas others prefer to stay around the midpoints and rarely use the most outer points. This naturally produces a difference in scores between participants, which reflects something other than what the questionnaire was designed to measure (Austin, Gibson, Deary, McGregor, & Dent, 1998).

Future Directions

There are several ways to improve research in the future given the aforementioned limitations. Because the completion of the study is attributed to the maturity levels of the participants, older participants may be required. More specifically, using slightly older students such as fifth graders may improve the completion of the physical activity data recording. Furthermore, this is certainly a possibility since the Energizers can be implemented with fifth graders. In addition, more interaction may be needed between the participants of the study and the study supervisor. This may involve periodic teacher and/or researcher supervision on data recording or perhaps instruction of the task on an as-needed basis. Both these proposed changes could improve completion. It must be mentioned however, that the recording errors did not rest solely on students, but on the recording device itself, so higher quality pedometers would also be necessary as well.

Finally, in addition to subject modifications, more frequent fidelity checks could improve Energizers implementation. In the present study, the classrooms were visited

every two weeks. In future studies, the researcher might consider doing weekly visits instead. If distance from the school makes that impossible, teachers could also set a daily reminder with their technology devices, and send their weekly summaries of completed Energizers activities by e-mail. Perhaps setting a contingency to receive incentives could also increase teacher compliance.

Conclusion

The results found here show no evidence for the Energizers program selectively affecting children's moods. Though it is true that there were differences in mood over time in both control and Energizers groups, it cannot be concluded that these differences were caused by participation in the Energizers program. Furthermore, data indicated fluctuation in the mood scores over time with no overall trend in either positive or negative directions. However, one potential effect was found for gender. Girls indicated higher positive mood scores, and lower negative mood scores than boys. Future studies testing the effects of the exercise on children's moods should ensure compliance of the program, and ensure proper sensitivity in the research measures.

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Appendix A

Table 1. Analysis of Variance for Short-Term Positive Mood

Sources of Variance	*SS*	*df*	*MS*	*F*	*p*	*Partial Eta Squared*	*Power*
Between-Subjects							
Group	3.47	1	3.47	0.03	0.88	0.00	0.05
Residuals	8775.34	63	139.29				
Within-Subjects							
Time	576.14	1	576.14	19.20	0.00	0.23	0.99
2-Way Interaction Effect of Group x Time	13.96	1	13.96	0.47	0.50	0.01	0.10
Residuals	1890.93	63	30.02				

Table 2. Analysis of Variance for Short-Term Negative Mood

Sources of Variance	*SS*	*df*	*MS*	*F*	*p*	*Partial Eta Squared*	*Power*
Between-Subjects							
Group	32.03	1	576.14	19	0.88	0.00	0.05
Residuals	8775.34	63	139.29				
Within-Subjects							
Time	32.03	1	32.03	2.93	0.09	0.04	0.39
2-Way Interaction Effect of Group x Time	1.29	1	1.29	0.12	0.73	0	0.06
Residuals	688.2	63	10.92				

Table 3. Analysis of Variance for Positive Mood Scores

Sources of Variance	*SS*	*df*	*MS*	*F*	*p*	*Partial Eta*	*Power*
Between-Subjects							
Gender	894.66	1	894.66	5.2	0.03*	0.08	0.61
Group	252.86	1	252.86	1.47	0.23	0.02	0.22
2-Way Interaction Effect of Gender x Group	21.68	1	21.68	0.13	0.72	0.00	0.06
Residuals	10487.67	61	171.93				
Within-Subjects							
Time	273.58	2	136.79	3.22	0.04*	0.05	0.61
2-Way Interaction Effect of Gender x Time	31.52	2	15.76	0.37	0.69	0.01	0.11
2-Way Interaction Effect of Time x Group	90.83	2	45.41	1.07	0.35	0.02	0.23
3-Way Interaction Effect of Gender x Time x Group	72.39	2	36.2	0.85	0.43	0.01	0.19
Residuals	2790.69	122	22.88				

Table 4. Analysis of Variance for Negative Mood Scores

Sources of Variance	*SS*	*df*	*MS*	*F*	*p*	*Partial Eta Squared*	*Power*
Between-Subjects							
Gender	505.09	1	505.09	7.14	0.01*	0.11	0.75
Group	253.67	1	253.67	3.59	0.06	0.06	0.46
2-Way Interaction Effect of Gender x Group	1.03	1	1.04	0.02	0.9	0	0.05
Residuals	4312.51	61	70.7				
Within-Subjects							
Time	11.27	2	5.64	0.25	0.78	0	0.09
2-Way Interaction Effect of Gender x Time	3.49	2	1.75	0.08	0.93	0	0.06
2-Way Interaction Effect of Time x Group	21.75	2	10.88	0.48	0.62	0.01	0.13
3-Way Interaction Effect of Gender x Time x Group	63.25	2	31.63	1.38	0.26	0.02	0.29
Residuals	2790.69	122	22.88				

Appendix B

Figure 1. Main effects for gender for positive mood scores

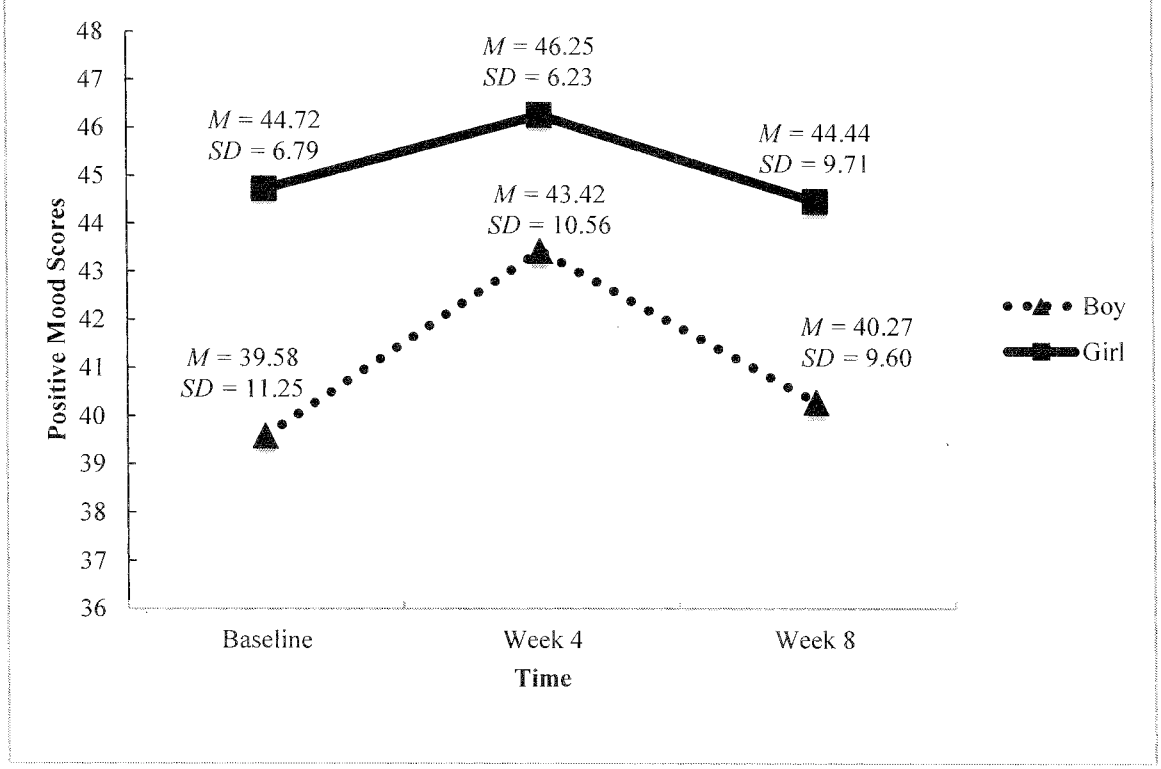


Figure 2. Estimated means of positive mood of boys

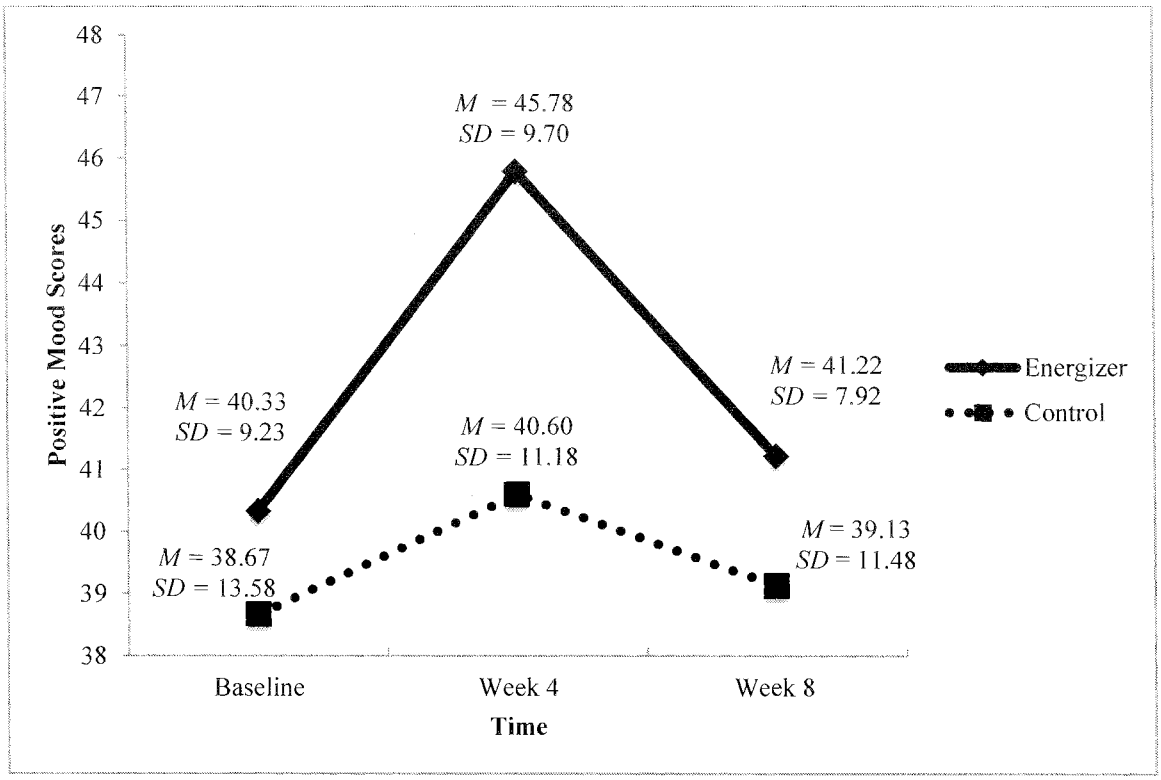


Figure 3. Estimated means of positive mood of girls

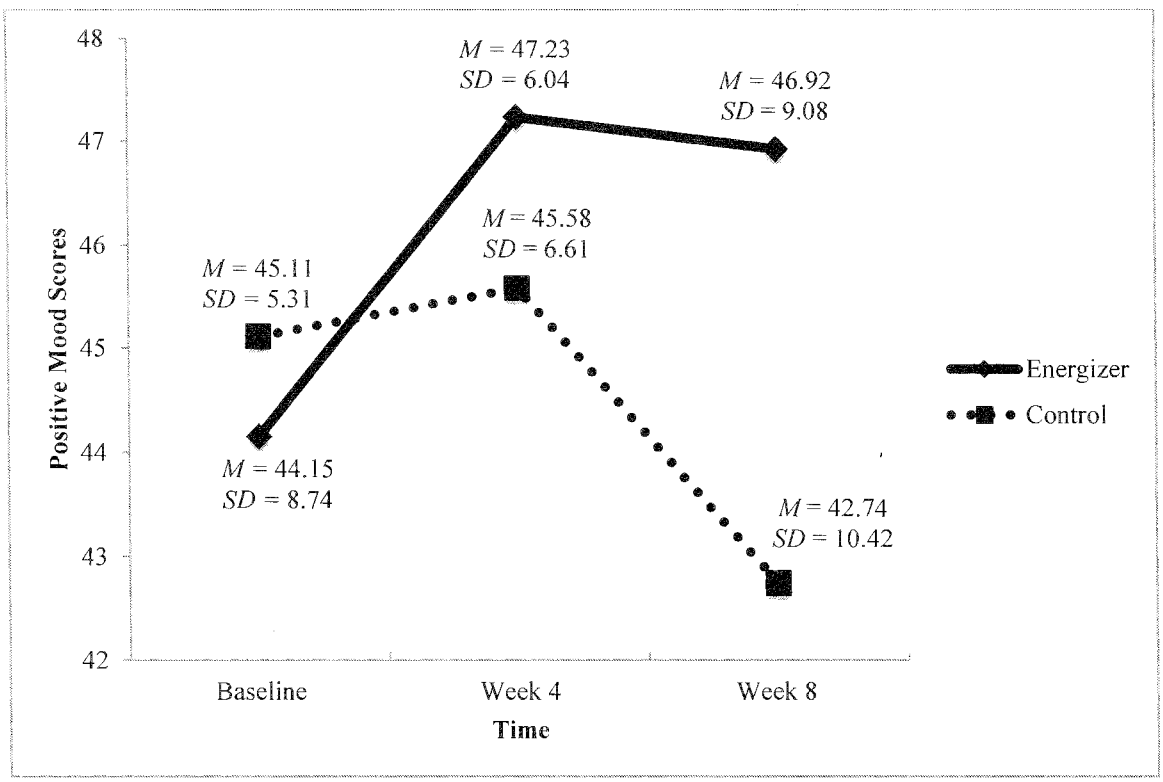


Figure 4. Main effects for gender for negative mood scores

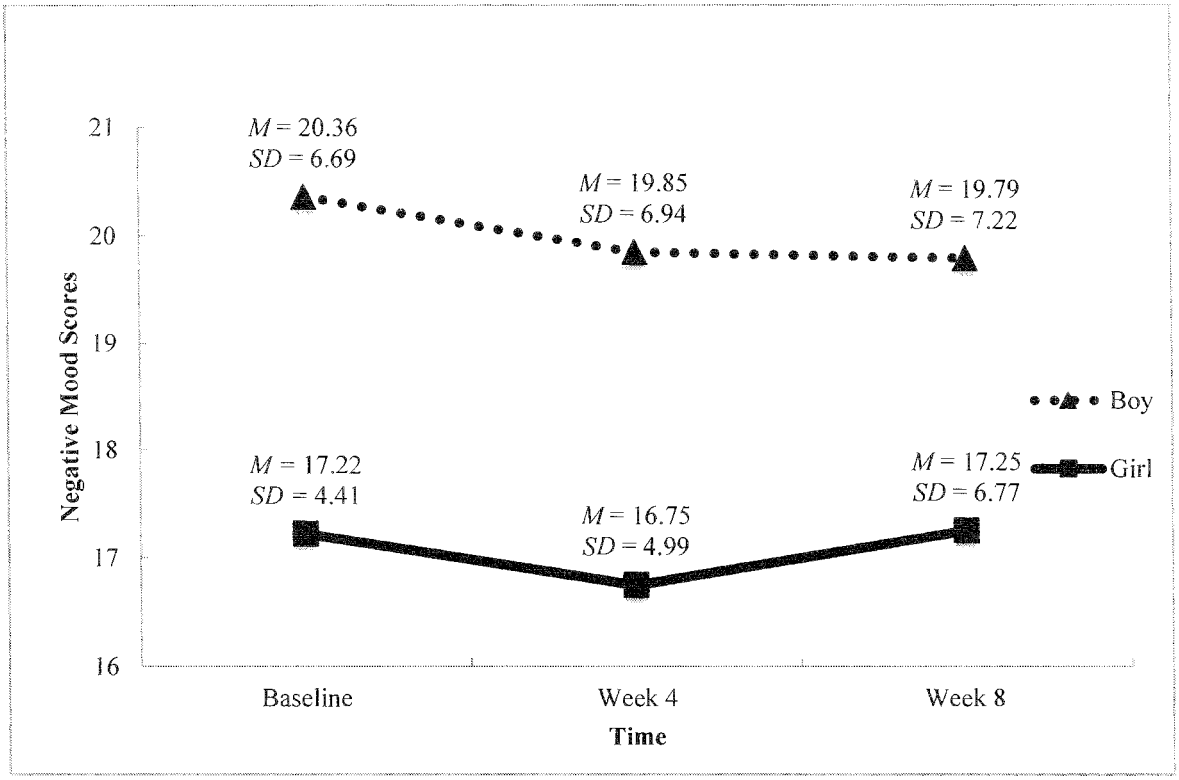


Figure 5. Estimated means of negative mood of boys

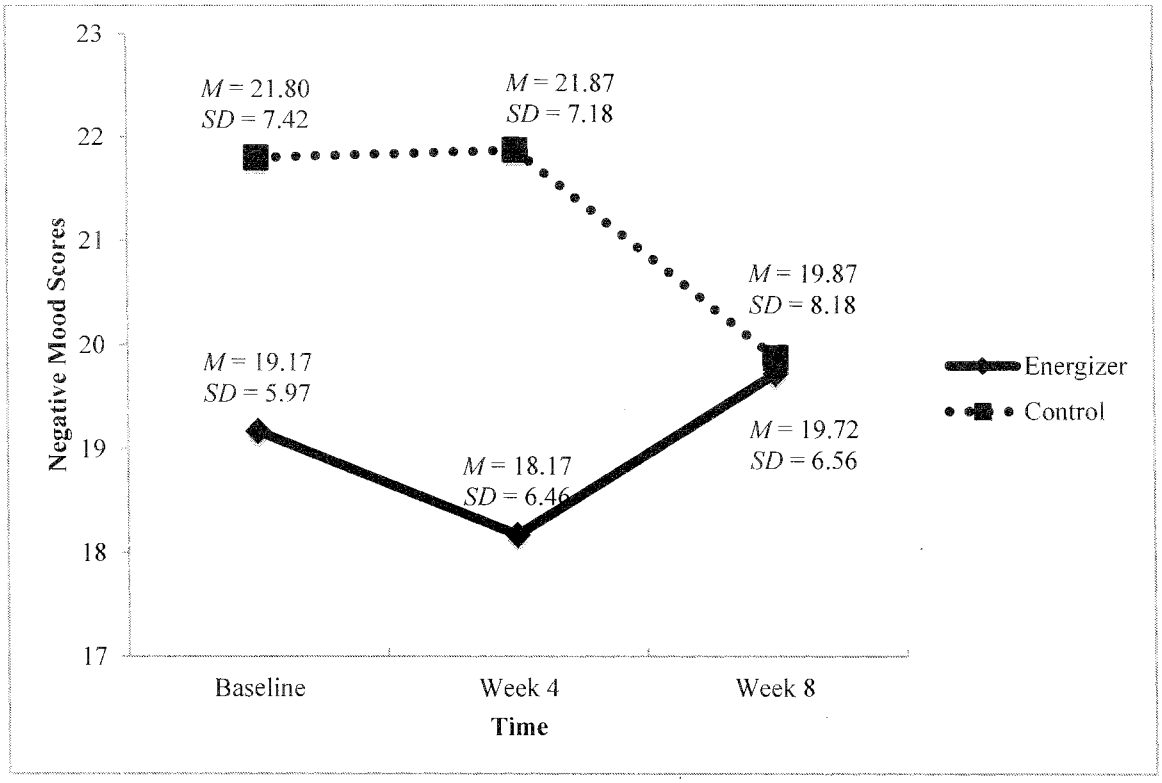
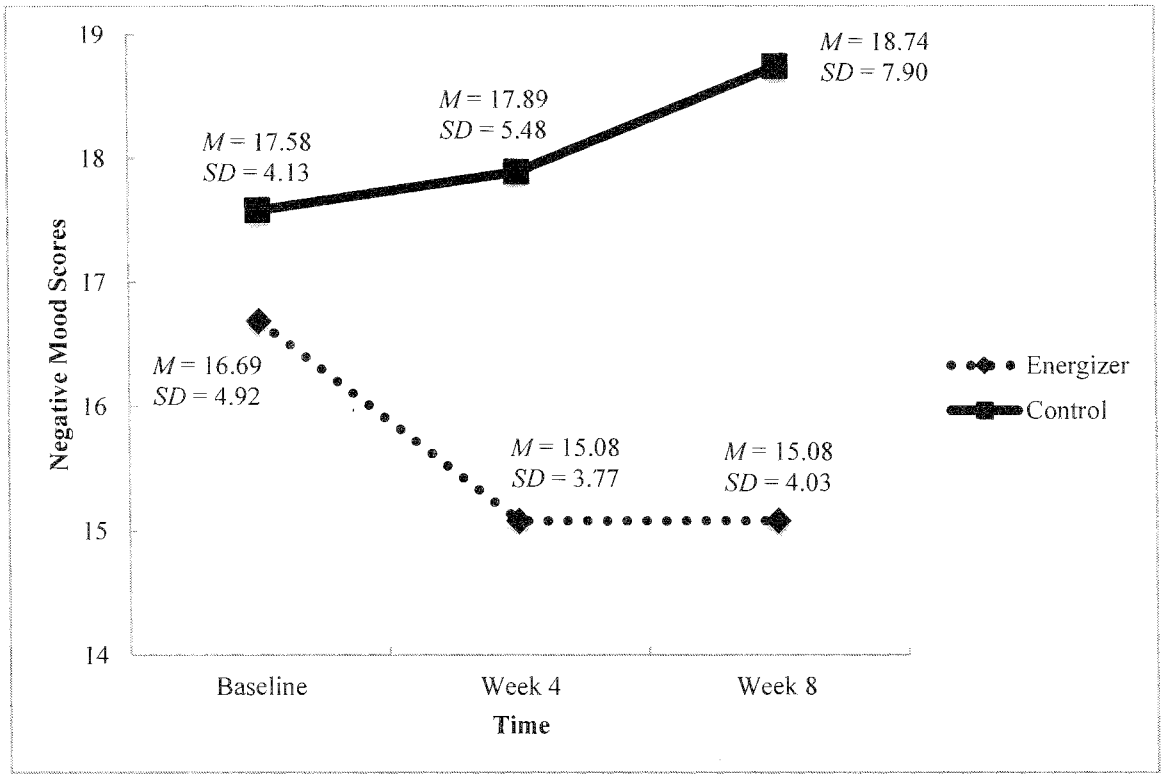


Figure 6. Estimated means of negative mood of girls



Appendix C
Mood Survey

Age: _____

Gender
1 = Boy, 2 = Girl _____

Ethnicity: 1 = African American, 2 =Asian, 3 = Caucasian, 4 = Hispanic or Latino, 5 = Other_____

Rate yourself on a scale from 1 to 5 on the following words to describe your current mood:
1= Not at all
2= A little
3 = A fair amount
4 = Very
5 = Extremely

Active	1	2	3	4	5
Awake	1	2	3	4	5
Angry	1	2	3	4	5
Annoyed	1	2	3	4	5
Bored	1	2	3	4	5
Calm	1	2	3	4	5
Cheerful	1	2	3	4	5
Cross	1	2	3	4	5
Energetic	1	2	3	4	5
Excited	1	2	3	4	5

1= Not at all
2= A little
3 = A fair amount
4 = Very
5 = Extremely

Fearful	1	2	3	4	5
Friendly	1	2	3	4	5
Happy	1	2	3	4	5
Helpful	1	2	3	4	5
Kind	1	2	3	4	5
Lively	1	2	3	4	5
Lonely	1	2	3	4	5
Pleased	1	2	3	4	5
Sad	1	2	3	4	5
Spiteful	1	2	3	4	5
Sorry	1	2	3	4	5
Tired	1	2	3	4	5

Appendix D
Glossary

Active: involving physical effort and action; engaged in action; characterized by energetic work, participation

Awake: lively or alert

Angry: feeling mad

Annoyed: aggravated

Bored: feeling dull

Calm: free from excitement or irritation

Cheerful: joyful or happy

Cross: angry or annoyed

Energetic: showing a lot of energy or force

Excited: feeling lively or emotionally awake

Fearful: scared

Friendly: kind; showing friendship

Happy: delighted, joyful

Helpful: giving or aiding

Kind: good natured

Lively: full of life or spirit

Lonely: unhappy due as a result of being without the companionship of others

Pleased: satisfied or content

Sad: unhappy

Spiteful: mean, cruel

Sorry: feeling regret; feeling sympathy for another

Tired: exhausted, fatigued, sleepy

Unhappy: sad or sorrowful

Appendix E

Dear Administrator:

Your school is being asked to participate in a thesis research study conducted by myself, Emily Estes, a school psychology graduate student at Eastern Illinois University. The purpose of the study is to determine if a physical activity program will positively influence children's moods.

The Energizers program is a classroom-based 8-week exercise program that incorporates short 10-minute physical activities into the class curriculum each day. We are asking for (2) third grade teachers and (2) fourth grade teachers from your school to participate. Two of the classes will implement the Energizer program while the other two classes will serve as control groups. Teachers implementing the Energizers program will be required to attend a 30-minute training session on how to conduct the activities and will be given the complete Energizers booklet describing the activities. Each child will also complete a short mood questionnaire (Profile of Mood States, adapted form) to assess mood levels before beginning the Energizers Program, 4 weeks into the program, and at the end of the 8-weeks. Students will be given pedometers to wear each day to record and measure physical activity, and will be allowed to keep them after the study is complete. Teachers participating and completing the study will be given $25 Visa gift cards as an incentive.

Parental consent will be required for each child to participate. Any information that is obtained in connection with this study and that can be identified with each child will remain confidential and will be disclosed only with parental permission or as required by law. Confidentiality will be maintained by means of eliminating any connection between participants' names and their data.

An agreement form for the study is attached. You may use this form or draft your own, but it must be signed and returned upon a letterhead from your school to be submitted to the Institutional Review Board (IRB) for final approval.

If your school is interested in participating, please contact me, or my thesis supervisor by e-mail or phone:

Emily Estes
eaestes@eiu.edu
618-977-1763

Thesis Supervisor:
Jeffrey R. Stowell, Professor of Psychology
jrstowell@eiu.edu
618-581-2279

Thank you for your consideration,
Emily Estes

Link to the Energizer Booklet: http://www.eatsmartmovemorenc.com/Energizers/Texts/K-5-Energizers.pdf

Appendix F
CONSENT TO PARTICIPATE IN RESEARCH STUDY

Dear Parent or Guardian,

Your child's class has been chosen to participate in a thesis research study conducted by Emily Estes, a school psychology graduate student at Eastern Illinois University. The purpose of the study is to determine if the Energizers program will positively influence your child's mood.

The Energizers program is a classroom-based 8-week exercise program that incorporates daily short 10-minute physical activities into the class curriculum. If you provide consent for your child to participate, your child will be asked to wear a pedometer each day and record the number of steps taken to measure physical activity levels. Your child will also complete a short mood questionnaire (Profile of Mood States, adapted) to assess their mood levels before beginning the Energizers Program, 4 weeks into the program, and at the end of the 8-weeks. At the end of the study your child will be allowed to keep his or her pedometer.

The Energizers program has researched benefits for children. In addition to increasing physical activity, the Energizers Program was shown to increase on-task academic behavior in students. While there are some minimal risks related to physical activity, the risks involved in this study are no greater than those that are posed in your child's Physical Education class.

Any information that is obtained in connection with this study and that can be identified with your child will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of eliminating any connection between participants' names and their data.

Participation in this research study is voluntary and you may withdraw consent at any time without consequences.

I give consent for my child to participate in this research study and grant permission for Emily Estes, a school psychology graduate student enrolled in the thesis course at Eastern Illinois University to administer a brief demographic survey and the Profile of Mood States Adapted Form Questionnaire to _____, for whom I am the parent or legal guardian and understand that the purpose of this questionnaire is to assess my child's mood.

_____	_____
Signature of Parent or Guardian	Signature of Child
_____	_____
Date	Date